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Assessment Guidelines for TABLE A-II/1
Specification for minimum standard of competency

Proficiency as Officer in Charge of a Navigational Watch on Ships of 500 gross tonnage or more

Candidates for a certificate as an officer in charge of a navigational watch are required to meet the standards of competence in STCW Code Table A-II/1. Anyone offering approved or accepted training must assess the candidate's knowledge, understanding and proficiency of the subjects listed in the Table to determine whether or not a candidate has met the standard of competence. The assessment must include an examination of the candidate's knowledge and an evaluation of a candidate's ability to perform required skills.

Assessment of competence should encompass more than the immediate technical requirements of the job or the skills and tasks to be performed, and should reflect the broader aspects needed to meet the full expectations of competent performance as a ship's officer. This includes relevant knowledge, theory, principles and cognitive skills that underpin all levels of competence. It also encompasses proficiency in what to do, how and where to do it, and why it should be done. Properly applied, this will help to ensure that a candidate can:

1. work competently in different ships and across a range of circumstances;
2. anticipate, prepare for and deal with contingencies; and
3. adapt to new and changing requirements.

The arrangements for evaluating competence should be designed to take account of different methods of assessment that can provide different types of evidence about candidates' competence, i.e.:

1. direct observation of work activities (including seagoing service);
2. skills/proficiency/competency tests;
3. projects and assignments;
4. evidence from previous experience; and,
5. written and computer-based questioning techniques.

Skills that must be demonstrated

The assessment criteria that follow identify those **skills** in Table A-II/1 that must be demonstrated. Training providers and assessors may develop their own criteria and checklists for the evaluation of practical demonstrations, as long as their conditions, behavior and standards are equivalent to these guidelines. Where a minimum CPA is required, it is to determine if the candidate can achieve the CPA, not to establish the value as acceptable under operational conditions. When the assessment is conducted at sea, the ship's officer or designated examiner may select a CPA appropriate to the actual conditions or in accordance with the master's or ship's standing orders as long as the CPA chosen is noted in the checklists.

These assessment guidelines establish the conditions under which the assessment will occur, the performance or behavior the candidate is to accomplish, and the standards against which the performance is measured. The examiner is also encouraged to use checklists in conducting

assessments of practical demonstrations of skill. Checklists allow a training institution or designated examiner to ensure that critical tasks are not overlooked when evaluating a candidate's practical demonstration.

Assessors must directly observe each candidate performing each demonstration in accordance with the methods allowed by Column 3 of the Table. The assessment guidelines, if followed, will ensure the validity and reliability of the assessment of the practical demonstrations.

Knowledge that must be assessed

A candidate's knowledge of the subjects listed in Table A-II/1 must also be assessed. This can be accomplished through written examination approved for this purpose. The written examinations may be in the multiple-choice format. The candidate must achieve a minimum-passing grade of 70% in each area of knowledge or understanding within the competency. In other words, if a candidate must demonstrate his competence in determining a vessel's position, the candidate must pass an examination that he or she has achieved the required knowledge of the subject, and also demonstrate his or her ability to determine and plot the vessels position. If a particular knowledge, understanding and skill contains several subjects requiring knowledge, the assessor must determine that the candidate has gained the knowledge by examining each individual subject listed. If only one question on the subject is asked, and the candidate fails the question, the competence has not been achieved.

Assessments by written examination are required for: Celestial Navigation, Terrestrial Navigation, Electronic Navigation and Position Systems; Echo Sounders; magnetic and Gyro compasses; Steering Control Systems, Meteorology, Watchkeeping, including Bridge Resource Management and Voyage Planning, Radar Navigation, ARPA, Emergency Procedures, Search and Rescue, Visual Signaling, Ship Handling, Cargo Handling and Stowage, Pollution Prevention, Ship Stability, Fire Fighting and Fire Prevention, Life Saving, Medical Aid, and IMO Conventions concerning Safety of Life at Sea.

Training and Assessment in Radar and ARPA must include successful completion of approved simulator courses and in service experience. Training and assessment in Medical First Aid, Fire Prevention and Fire Fighting, Advanced Fire Fighting and Crowd Management and Passenger Safety for passenger ships may be satisfied by attending independent courses that are Coast Guard approved or accepted as meeting the requirements of the STCW. These guidelines contain assessment criteria for some of these subjects. The Coast Guard will only grant approval for these courses if they use the relevant national assessment criteria or their equivalents in their courses to assess practical demonstrations of skill.

TABLE A-II/1 Guidelines for Assessment
Specification of minimum standard of competence
OFFICER IN CHARGE OF A NAVIGATIONAL WATCH

Function: Navigation at the operational level

STCW Competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Celestial Navigation Ability to use celestial bodies to determine the ship's position. Adjust a sextant.	Given a standard marine sextant with a perpendicularity error, side error, parallelism error, and collimation error, totaling no more than 2' and a clear horizon or sharply defined cloud,	the candidate will remove the adjustable sextant errors.	1. The errors are removed in the following order: a. Perpendicularity; b. Side error; c. Parallelism; and d. Collimation error. 2. The index error is less than 0.5 minutes of arc.
	Measure the altitude of the sun.	Aboard a ship at sea, given a standard marine sextant, a clear horizon, a visible sun, and an accurate time,	the candidate will measure the altitude of the lower limb of the sun and accurately record the time of the observation.	1. The altitude is within ± 0.5 minutes of arc, after correction for index error, as compared with the altitude measured by the assessor at the same time; and, 2. The time is within ± 2 second of UTC at the time of observation as determined by the assessor.

	KUP	Performance Condition	Performance Behavior	Performance Standard
ne	<p>Ability to use celestial bodies to determine the ship's position.</p> <p>Measure the altitude of at least 3 stars .</p>	<p>Aboard a ship at sea, given a standard marine sextant, a clear horizon, a clear or partly cloudy sky, and an accurate time, during a single twilight,</p>	<p>the candidate will measure the altitude of three stars and accurately record the times of the observation of each star.</p>	<ol style="list-style-type: none"> 1. The altitude is within ± 0.5 minutes of arc, after correction for index error, as compared with the altitude measured by the assessor at the same time; and, 2. The time is within ± 2 second of UTC at the time of observation as determined by the assessor.
ne	<p>Ability to use celestial bodies to determine the ship's position.</p> <p>Measure the altitude of the sun at meridian passage (local apparent noon).</p>	<p>Aboard a ship at sea, given a standard marine sextant, a clear horizon, a clear or partly cloudy sky,</p>	<p>the candidate will measure the altitude of the sun as it transits the meridian on which the vessel is located.</p>	<p>The altitude is within ± 0.5 minutes of arc, after correction for index error, as compared with the altitude measured by the assessor at meridian passage.</p>
ne	<p>Ability to use celestial bodies to determine the ship's position.</p> <p>Celestial running fix .</p>	<p>Aboard a ship at sea, or in a navigation laboratory, when given the assumed positions, the intercepts, azimuths, and times of three observations of the sun, and on a standard plotting sheet appropriate for the dead reckoning position,</p>	<p>the candidate will advance all three lines of position to a common time.</p>	<p>The position of the running fix is within 1 nm of the assessor's solution.</p>

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Ability to use celestial bodies to determine the ship's position. Star fix.	Aboard a ship at sea, or in a navigation laboratory, when given the assumed positions, the intercepts, azimuths, and times of three star observations, and on a standard plotting sheet appropriate for the dead reckoning position,	the candidate will plot the three lines of position and advance them to a common time.	The position of the star fix is within 1 nm of the assessor's solution.
Plan and conduct a passage and determine position..	Terrestrial and coastal navigation Ability to determine the ship's position by use of: .1 landmarks. .2 aids to navigation, including lighthouses, beacons and buoys.	On a ship underway, or on a full mission ship simulator, with land and aids to navigation in sight, using a standard bearing circle, alidade, or other device for taking bearings, and given a chart with a scale of no more than 1: 150,000,	the candidate will determine the bearings of at least two charted objects and plot them.	<ol style="list-style-type: none"> 1. The position is within ± 0.1 nm of the assessor's position. 2. Crossing angles of bearings should be not less than 30° and not more than 160° between bearings. 3. The bearings of objects abeam or close to the beam are observed first. 4. The chart in use is the largest scale suitable for the waters being transited.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of: Marine Radar.	On an operational marine radar or a radar simulator that meets applicable national and international performance standards, with land and buoys displayed, and given a chart with a scale of no more than 1: 150,000,	the candidate will determine two or more ranges measured from identified charted objects or points of land and plot them.	The position is within \pm 0.1 nm of the assessor's position.
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of: Marine Radar.	On an operational marine radar or a radar simulator that meets applicable national and international performance standards, with land and buoys displayed, and given a chart with a scale of no more than 1: 150,000,	the candidate will determine two or more tangents measured from identified-charted objects or points of land and plot them.	The position is within \pm 0.1 nm of the assessor's position.
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of: Dead Reckoning.	On a ship underway and using a standard plotting sheet or chart, and given the vessels speed made good and course made good for the past four hours,	the candidate will plot the ship's DR position for every hour (or more frequently if required) for the duration of the watch.	The position is within \pm 1 nm of the assessor's position.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of: Set and Drift.	On a ship underway, or on a full mission ship simulator, with the ship's speed of at least 10 knots, and using a plotting sheet or chart, when encountering wind and current which sets the vessel,	the candidate will plot the vessel's position on at least two successive occasions not less than 30 minutes apart, for a vessel steaming at least 10 kts, and calculate set and drift by vector analysis and determine the course to steer to make the intended course.	The course to steer is within $\pm 5^\circ$ of the assessor's solution.
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of: Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routing information.	On a ship, or in a navigational laboratory, given notices to mariners and uncorrected charts, and publications,	the candidate will correct five charts and three publications, including the <i>Light List</i> or the <i>List of Lights</i> .	<ol style="list-style-type: none"> 1. Charts and publications needing correction are identified. 2. Corrections are correctly made to the affected charts and publications. 3. All corrections to charts are recorded on the chart, and in the chart-correction record or on the chart-correction spreadsheet, and all corrections to publications are recorded on the correction page of the publication, and on the publication-correction card or the

					publication- correction spreadsheet.
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routing information.	On a ship, or in a navigational laboratory, given a voyage of at least 1,000 nm between the port of departure and the port of arrival, and given the appropriate chart catalog,	the candidate will identify the charts needed for the voyage.	<ol style="list-style-type: none"> 1. The name and number of the charts are correctly identified and recorded. 2. The charts selected are the largest scales appropriate for the area transited. 3. There is no gap in chart coverage for any portion of the voyage requiring coastal navigation and departure and arrival at any port.
Plan and conduct a passage and determine position.	Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routing information.	On a ship, a full mission ship simulator, or in a navigation laboratory, when given three way points consisting of a position of departure, a position of arrival, and one other way point, with the total distance of more than 1,000 nm,	<p>the candidate will:</p> <ol style="list-style-type: none"> 1. determine the appropriate courses and distances between way points, and 2. plot the intended courses on the charts selected. 	<ol style="list-style-type: none"> 1. Courses and distances between way points were correctly calculated. 2. The route was the most direct. 3. The courses were plotted on the appropriately scaled charts noting the ETA at each way point, including the final way point.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Electronic systems of position fixing and navigation Ability to determine the ship's position by use of electronic navigational aids. GPS	On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a GPS receiver which meets IMO performance standards,	the candidate will initialize a GPS receiver, determine the ship's position, and evaluate the accuracy of that position.	1. The system was initialized. 2. The indicators of position accuracy were determined.
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of electronic navigational aids. GPS	On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a GPS receiver which meets IMO performance standards, when hearing "Man Overboard,"	the candidate will activate the man overboard/emergency position save function.	The ship's position is saved or recorded within one minute of hearing "Man Overboard."
Plan and conduct a passage and determine position.	Ability to determine the ship's position by use of electronic navigational aids. LORAN	On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a loran receiver which meets NMEA performance standards,	the candidate will initialize a loran receiver, determine the ship's position, and evaluate the accuracy of that position.	1. The receiver is turned on; 2. The appropriate station pair is selected. 3. The lat/lon or TDs are read and plotted correctly within 0.1 nm of the assessor's position on a chart with a scale of no more than 1:150,000. 4. The accuracy of the fix is evaluated using system and receiver limitations and TD crossing angles.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Echo Sounders Ability to operate the equipment and apply the information correctly.	On a ship underway using an echo sounder which meets IMO performance standards or a part task trainer that realistically simulates all the functions and controls of an echo sounder which meets IMO performance standards	the candidate will turn on, test, and operate the echo sounder.	<ol style="list-style-type: none"> 1. The system is turned on. 2. The echo sounder is tested in accordance with manufacturer recommendations. 3. The correct GMT is noted on the echo sounder paper (if fitted). 4. The scale selected is the lowest appropriate for the vessel's draft and the depth of water of the area of transit. 5. The sensitivity is adjusted to obtain proper depth reading on the display and correct trace on the paper (if fitted).

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	<p>Compass – Magnetic and Gyro</p> <p>Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors.</p>	On a ship underway or on a full mission ship simulator, using navigational or natural terrestrial ranges,	the candidate will take a visual bearing of the range and determine gyro-compass error.	<ol style="list-style-type: none"> 1. The visual bearing is compared to the charted bearing. 2. The compass error is determined and properly labeled. 3. The solution is $\pm 0.5^\circ$ of the assessor's solution.
Plan and conduct a passage and determine position.	Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors.	On a ship underway or on a full mission ship simulator, with both a magnetic and gyro-compass,	the candidate will determine the magnetic compass error.	<ol style="list-style-type: none"> 1. The magnetic heading is compared to the corrected gyro heading (corrected for a known gyro error). 2. The magnetic compass error is determined and properly labeled. 3. The solution is $\pm 0.5^\circ$ of the assessor's solution. 4. The error is correctly recorded in the compass record book and the ship's log.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors.	On a ship underway or on a full mission ship simulator, using navigational or natural terrestrial ranges, using only a magnetic compass, and a chart with variation,	the candidate will note the vessel's magnetic-compass heading while aligned on the range and determine magnetic compass deviation.	<ol style="list-style-type: none"> 1. The magnetic heading is compared to the charted range bearing. 2. The magnetic compass error is determined and properly labeled. 3. Variation is determined from the chart. 4. The deviation solution is $\pm 0.5^\circ$ of the assessor's solution. 5. The deviation is correctly recorded in the compass record book and the ship's log.
Plan and conduct a passage and determine position..	Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors.	On a ship underway or on a full mission ship simulator, and given a deviation table,	the candidate will correctly apply the compass error to the course by magnetic compass to make good the intended true course	<ol style="list-style-type: none"> 1. Compass error is correctly applied to the magnetic course. 2. The solution is $\pm 1^\circ$ of the assessor's solution.
Plan and conduct a passage and determine position.	Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors.	On a ship underway or on a full mission ship simulator, or in a navigational laboratory, and given a deviation table,	the candidate will correctly apply the compass error to the bearings by magnetic compass of at least two charted objects and plot them on the chart in use	<ol style="list-style-type: none"> 1. Compass error is correctly applied to the magnetic bearings. 2. The position is within ± 0.5 nm of the assessor's position on a chart with a scale of no more than 1:150,000.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	<p>Ability to determine errors of the magnetic and gyro-compasses, using celestial means, and to allow for such errors.</p> <p>AZIMUTH OF THE SUN</p>	On a ship underway, and using a standard azimuth circle,	the candidate will read the gyro-compass bearing of the sun and determine gyro compass error.	<ol style="list-style-type: none"> 1. The azimuth of the sun is read when the repeater is level. 2. The time of the reading is noted. 3. The true azimuth of the sun for the time of the reading is determined. 4. The gyro-compass azimuth is compared to the true azimuth and the gyro error is determined. 5. The solution is $\pm 0.5^\circ$ of the assessor's solution.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	<p>Ability to determine errors of the magnetic and gyro-compasses, using celestial means, and to allow for such errors.</p> <p>AZIMUTH OF ANY BODY AT NIGHT</p>	On a ship underway at night, and using a standard azimuth circle,	the candidate will read the gyro-compass bearing of any body and determine gyro compass error.	<ol style="list-style-type: none"> 1. The azimuth of the body is read when the repeater is level. 2. The time of the reading is noted. 3. The true azimuth of the body for the time of the reading is determined. 4. The gyro-compass azimuth is compared to the true azimuth and the gyro error is determined. 5. The solution is $\pm 0.5^\circ$ of the assessor's solution.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Steering control systems Adjustment of controls for optimum performance.	On a ship underway or on a full mission ship simulator,	the candidate will conduct the pre-departure test of the vessel's steering gear.	<ol style="list-style-type: none"> 1. The steering control system is turned on. 2. The steering gyro repeater is aligned with the master gyro-compass. 3. After the required warm up period, the controls for switching pumps and motors between the port and starboard steering systems are tested. 4. Both port and starboard steering systems are tested as follows: <ol style="list-style-type: none"> a. When the control is switched to hand steering, the rudder is tested throughout its full range of motion. <p>When the control is switched to non follow-up, the rudder is tested throughout its full range of motion.</p>

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Adjustment of controls for optimum performance.	On a ship underway or on a full mission ship simulator, while in auto-pilot,	the candidate will set the rudder and weather controls that are most suitable for the weather and sea conditions.	<ol style="list-style-type: none"> 1. The weather control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions. 2. The rudder control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions for the area transited or simulated. 3. The rate of turn control (if fitted) is set in accordance with the standing orders.

e	KUP	Performance Condition	Performance Behavior	Performance Standard
ine	Meteorology Ability to use and interpret information obtained from on-board meteorological instruments.	On a ship underway or in a laboratory,	the candidate will determine the barometric pressure in millibars, or in inches or millimeters of mercury.	1. The barometer is read and the appropriate corrections are applied. 2. The barometric pressure determined by the candidate is within 0.5 millibar; .02 inch or 0.4 millimeter of the assessor's corrected reading.
ine	Ability to use and interpret information obtained from on-board meteorological instruments.	On a ship underway or in a laboratory, and using an anemometer,	the candidate will determine true wind speed and direction.	1. The apparent wind speed and direction is converted to true wind speed and direction. 2. The candidate's solution is within one point for direction and five knots for speed.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a passage and determine position.	Ability to use and interpret information obtained from on-board meteorological instruments.	On a ship underway or in a laboratory, and using the surface, upper air and sea state analysis weather maps,	the candidate will determine the weather to be encountered during the next 24-hour period.	The candidate's determinations of expected wind, sea and weather conditions (types and amount of cloud cover, rain and fog) are based on standard meteorological principles and agree with the assessor's determinations based on the movement of the systems and fronts.
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	At night, on a ship underway, on a full mission ship simulator, or using approved laboratory equipment,	the candidate will identify vessels through observation of their light configurations.	The candidate correctly identifies the situation or occupation of 18 of 20 vessels that have different light configurations.
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	In daylight, on a ship underway, on a full mission ship simulator, or using approved laboratory equipment,	the candidate will identify vessels through observation of their required shapes.	The candidate correctly identifies the situation or occupation of 18 of 20 vessels that are displaying different required shapes.
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	In restricted visibility, on a ship underway, on a full mission ship simulator, or using approved laboratory equipment,	the candidate will identify vessels by hearing their required sound signals.	The candidate correctly identifies the situation or occupation of 9 of 10 vessels sounding different required sound signals.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	On a ship underway, on a full mission ship simulator, or using approved laboratory equipment, and using a gyro-compass repeater and an azimuth circle, bearing circle, alidade, or other device for taking bearings, and a marine radar or ARPA (which meet IMO performance standards) set on the 12 mile scale and the targets more than 8 miles away,	the candidate will determine if risk of collision exists with approaching meeting, crossing and overtaking vessels.	<ol style="list-style-type: none"> 1. Two visual bearings of an approaching vessel are taken using an azimuth circle, bearing circle or alidade to determine if the bearing to the approaching vessels is appreciably changing. 2. Each observation is within $\pm 2^\circ$ of the assessor's bearing. 3. Two electronic bearings of an approaching vessel are taken on a radar or an ARPA to determine if the bearing to the approaching vessels are appreciably changing. 4. Each observation is within $\pm 2^\circ$ of the assessor's bearing.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	On a ship underway, on a full mission ship simulator, or using approved laboratory equipment, when risk of collision with an approaching meeting vessel exists in good visibility in the open ocean,	the candidate will apply the rules of the road correctly and maneuver the vessel to avoid the collision, if required.	<ol style="list-style-type: none"> 1. The aspect of the approaching vessel is determined. 2. The situation is identified as a meeting situation. 3. Positive action in ample time is taken in accordance with the steering and sailing rules to achieve a CPA of at least 3 nm. 4. Speed or course changes are large enough to be readily apparent to another vessel observing visually or by radar.

KUP	Performance Condition	Performance Behavior	Performance Standard
<p>Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.</p>	<p>On a ship underway, on a full mission ship simulator, or using approved laboratory equipment, when risk of collision with an approaching crossing vessel exists in good visibility in the open ocean,</p>	<p>the candidate will apply the rules of the road correctly and maneuver the vessel to avoid the collision, if required.</p>	<ol style="list-style-type: none"> 1. The aspect of the approaching vessel is determined. 2. The situation is identified as a crossing situation; 3. Positive action in ample time is taken in accordance with the steering and sailing rules to achieve a CPA of at least 3 nm. 4. Speed or course changes is large enough to be readily apparent to another vessel observing visually or by radar.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea.	On a ship underway, on a full mission ship simulator, or using approved laboratory equipment, when risk of collision with an approaching overtaking vessel exists in good visibility in the open ocean,	the candidate will apply the rules of the road correctly and maneuver the vessel to avoid the collision, if required.	<ol style="list-style-type: none"> 1. The aspect of the approaching vessel is determined. 2. The situation is identified as an overtaking situation. 3. The candidate attempts to call the overtaking vessel on the VHF. 4. The danger signal is sounded. 5. Positive action in ample time is taken in accordance with Rule 17 of the steering and sailing rules to achieve a CPA of at least 1 nm. 6. Speed or course changes are large enough to be readily apparent to another vessel observing visually or by radar.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will properly relieve the watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraphs 21 and 22.	<ol style="list-style-type: none"> 1. The standing orders and night orders are read. 2. The vessel's position, course and speed are read from the GPS receiver and compared to the DR position and track. 3. The position of the next charted way point is compared to the GPS way point and the route print out. 4. The identity of critical aids to navigation in sight is verified. 5. Tides and currents are determined as necessary. 6. Visibility and weather are determined. 7. The radar or ARPA is checked and is properly tuned. 8. Any targets displayed on the radar or ARPA are checked. 9. Heading by magnetic and gyro-compass is checked.

				<p>10. The navigational hazards likely to be encountered during the watch are determined.</p> <p>11. The possible effects of list, trim, water density and squat on under keel clearance are determined.</p> <p>12. Courses, traffic, weather and any special instructions are related by the officer being relieved.</p> <p>13. The relieving officer tells the officer being relieved that he or she is relieved.</p>
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will properly keep a safe navigational watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 23 to 50.	<ol style="list-style-type: none"> 1. The voyage plan is closely and continuously monitored. 2. A proper look out is maintained by all available means. 3. A safe speed is maintained throughout the watch period. 4. Position, course and speed are checked at frequent intervals. 5. The steering mode selected is appropriate to the area being transited. 6. Under keel clearance is suitable for the draft of the vessel at all times. 7. Course changes are made in accordance with the voyage plan. 8. The vessel's position is fixed and plotted on an appropriate chart at intervals suitable to the vessel's speed and the area being transited. 9. The identity of critical aids to navigation in sight is

				<p>determined.</p> <p>10. More than one method, including electronic and other navigational equipment, external fixed aids, geographic reference points, and hydrographic contours, is used to fix the vessel's position and check the accuracy of fixes.</p> <p>11. Radio equipment is frequently checked and functioning properly.</p> <p>12. The risk or danger of collision with each approaching vessel is determined and early and substantial action is taken in accordance with the COLREGS.</p> <p>13. Rudder and engine orders are executed as ordered.</p> <p>14. The validity of the gyro input to all navigation equipment. is verified</p> <p>15. Gyrocompass error is determined by any available means and the error is logged.</p>
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				<p>16. Magnetic variation and compass deviation are correctly applied to courses and bearings.</p> <p>17. The candidate determines the person steering the vessel is competent to do so.</p> <p>18. Tide and current conditions for the watch period are determined in coastal or tidal waters.</p> <p>19. Set and drift are determined and applied to allow for set and drift.</p> <p>20. The weather conditions at the ship are correctly and timely recorded and reported as required.</p> <p>21. Running lights are checked throughout the watch period.</p> <p>22. The master is notified as directed by all master's or standing orders.</p> <p>23. All required log entries are made.</p>
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will notify the master as instructed, and when in doubt of other vessels' intentions, or in any circumstances that affect the routine navigation of the vessel in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 40.	<p>The master is notified immediately when one of the following occurred.</p> <ol style="list-style-type: none"> 1. Restricted visibility is encountered or expected. 2. Vessel traffic density or the movements of other ships causes concern. 3. Difficulty is experienced in maintaining course. 4. Fails to sight land or a navigational mark, or to obtain soundings when expected. 5. Aids to navigation are not in position or were displaying incorrect characteristics. 6. Land or a navigational mark is unexpectedly sighted, or soundings obtained or changed unexpectedly. 7. The engines or its control systems, steering, or any essential navigational

				<p>equipment fails, or alarms or indicators for these systems sound;</p> <p>8. Any radio equipment fails.</p> <p>9. Concerns arise in heavy weather about damage to the vessel or its cargo.</p> <p>10. Any hazard to navigation that posed a threat to the vessel is noticed.</p> <p>11. Any doubt about the ship's safety or other emergency arises.</p> <p>12. Any changes are made to the voyage plan</p>
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship at anchor or on a full mission ship simulator during an exercise at anchor,	the candidate will properly keep a safe anchor watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 51.	<ol style="list-style-type: none"> 1. Determines and plots the ship's position; 2. Frequently checks the ship's position by visual and radar bearings and radar ranges from the same charted objects. 3. Establishes the GPS anchor alarm. 4. Maintains a proper lookout. 5. Ensures periodic inspections are made. 6. Posts a rating at the anchor to carry out orders with respect to the anchor. 7. Monitors weather, tides and sea state. 8. Notifies the master immediately when the weather changes, visibility becomes restricted, or the anchor starts to drag. 9. Places engines on standby and ready for immediate use where appropriate. 10. Properly displays all required lights and shapes and sounds proper sound signals.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship at sea or on a full mission ship simulator during an exercise at sea, when visibility becomes restricted while underway,	the candidate will recognize the restricted visibility take the appropriate action to navigate in restricted visibility in accordance with the COLREGS and in accordance with Section STCW Code A-VIII/2, Part 3-1, Paragraph 45.	<ol style="list-style-type: none"> 1. The restricted visibility is determined. 2. The master is notified. 3. Steering is switched to hand steering. 4. A proper lookout is posted and the running lights turned on. 5. The vessel's speed is set in accordance with Rule 6; 6. Sounding of required signals is commenced. 7. The radar or ARPA is set on the appropriate scale to scan at long range for the presence of other vessels. 8. Approaching targets, plotted on the radar or ARPA, if fitted, are used to obtain early warning of risk of collision and determine the speed and direction of relative motion.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of the principles to be observed in keeping a safe watch.	On a ship at sea or on a full mission ship simulator during an exercise at sea,	the candidate will turn the watch over.	<ol style="list-style-type: none"> 1. A DR position is plotted on the chart in use for the end of the watch. 2. The ship's position is determined and plotted all by means appropriate to the area transited. 3. Required weather data is read and recorded in the deck log. 4. The heading of the gyro and magnetic compasses are compared and recorded. 5. The movement of all vessel traffic is checked by both visual and electronic means immediately before being relieved. 6. The vessel's course and speed, posting of special lookouts, the steering mode in use, and weather and visibility are related to the relieving officer. 7. Any special instructions

				<p>regarding occurrences during the past watch or which are expected during the next watch are related.</p> <p>8. All relevant information concerning vessels in sight or on the radar or ARPA is reported to the relieving officer.</p> <p>9. The master is notified of any doubt that the relieving officer is competent to perform his or her duties.</p> <p>10. The watch is not turned over during a maneuver or other action to avoid a hazard to navigation.</p> <p>11. The officer being relieved does not leave the bridge until informed by the relieving officer that he or she is ready to take the watch.</p>
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of effective bridge teamwork procedures.	On a ship, a full mission ship simulator, or in a navigation laboratory, when given a port of departure and a port of arrival more than 1,000 apart,	the candidate will plan a voyage and review the voyage plan with the master and deck officers.	<p>Appraisal</p> <p>The candidate's plan takes into account paragraph 2 of the annex to IMO Assembly Resolution A 893(21):</p> <ol style="list-style-type: none"> 1. the condition of the vessel, its stability, equipment, operational limitations, draft and maneuvering characteristics; 2. any special characteristics of the cargo and its stowage; 3. crew members competency and rest status; 4. the status of all ship's certificates and documents were up to date; 5. up to date charts of proper scale, and the latest notices to mariners and radio navigational warnings; 6. up to date coast pilots, sailing directions, and other

				<p>information sources appropriate for the voyage;</p> <p>7. relevant routing guides;</p> <p>8. up to date tide and current tables and atlases;</p> <p>9. weather information;</p> <p>10. weather routing services;</p> <p>11. ship reporting systems, VTS and environmental protection measures;</p> <p>12. vessel traffic density for the route;</p> <p>13. pilotage requirements and information exchange; and,</p> <p>14. port information, including emergency response capability.</p> <p>Planning</p> <p>The candidate's plan contains the following in accordance with paragraph 3 of the annex to IMO Assembly Resolution A 893(21):</p> <p>15. courses plotted on the appropriately scaled charts noting the ETA at each way</p>
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				<p>point, including the final way point;</p> <p>16. courses and distances between way points are correctly calculated and indicated on the charts;</p> <p>17. the most direct route that avoided all hazards to navigation by the margin of safety of three miles;</p> <p>18. the areas of all required speed changes;</p> <p>19. the minimum under keel clearances in critical areas; positions requiring a change of machinery status;</p> <p>20. way point of all course changes;</p> <p>21. the methods and frequency of position fixing, including the areas requiring the highest accuracy;</p> <p>22. the positions and radio hailing frequencies or channels where port authorities, pilots and VTS services must be notified are noted on the relevant chart;</p>
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				<p>23. the state of the tide and currents at the port of departure for the times of departure and transit are determined;</p> <p>24. contingency plan for alternative actions in cases of emergency;</p> <p>25. the review of the voyage plan with the Master and deck officers.</p>
Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>Execute a voyage plan</p>	On a ship, or on a full mission ship simulator, when given a voyage plan,	the candidate will execute the voyage plan.	<p>The candidate, in accordance with paragraph 4 and 5 of the annex to IMO Assembly Resolution A 893(21):</p> <ol style="list-style-type: none"> 1. checks the reliability and condition of the navigational equipment at frequent intervals; 2. applies basic information obtained from the tide tables and other navigational publications to determine under keel clearance; 3. fixes the vessels position at appropriate intervals; 4. checks magnetic and gyro-compasses; 5. assesses meteorological

				<p>information; 6. determines compass error; 7. calculates sailings for up to 24 hours; 8. correctly operates and applies information from electronic navigation systems; 9. correctly operates the radar and ARPA and applies the information for navigation and collision avoidance; 10. correctly operates propulsion and steering systems to control heading and speed; 11. initiates action in event of a real or simulated equipment malfunction or failure of major items of equipment; 12. correctly conducts radio-communications; 13. monitors and correctly operated safety and alarm systems. 14. closely and continuously monitors the voyage plan.</p>
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Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>BRM</p> <p>Recognition of watch condition</p> <p>Watch Augmentation</p>	<p>On a ship at sea or on a full mission ship simulator during an exercise at sea, when help is needed because of restricted visibility, vessel traffic or safety of navigation,</p>	<p>the candidate will recognize the need for additional personnel on the bridge and notify the master.</p>	<p>The candidate notifies the master immediately of the following:</p> <ol style="list-style-type: none"> 1. restricted visibility is encountered or expected; 2. vessel traffic density or the movements of other ships causes concern; 3. the vessel will transit restricted waters with vessel traffic; 4. the candidate is fatigued to the point decision making is affected.
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STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>BRM</p> <p>Condition III: the ship is navigating near land, shoals, or with increased traffic density and/or restricted visibility. This condition requires concentrated navigation and observation of traffic for collision avoidance (entering or leaving port).</p>	On a ship at sea or on a full mission ship simulator during an exercise at sea, and with a bridge team in place for navigating in congested near coastal waters with or without reduced visibility, and assigned to monitor vessels traffic , using an IMO compliant ARPA,	<p>the candidate will identify all vessels (targets) posing a risk or danger of collision, and provide appropriate information and recommendations on vessel traffic and any other situation or condition that may effect the safe navigation of the vessel to the conning officer.</p>	<ol style="list-style-type: none"> 1. The risk and danger of collision of all approaching vessels is determined within 6 minutes. 2. The conning officer is immediately notified of the relative position of the threatening vessel, its CPA and TCPA. 3. Course changes in accordance with the COLREGS to remove the risks of collision and avoid the close quarters situations from developing are recommended. 4. All recommended course or speed changes result in increasing the CPA to approaching vessels identified as posing a risk or danger of collision. 5. All recommended course changes provide sufficient sea room and bottom clearance for the area transited.

					<div>6. Communication is clear, immediate, reliable and relevant. 7. Non essential activities are avoided.</div>
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				<p>clear, immediate, reliable and relevant.</p> <p>7. Non essential activities are avoided.</p> <p>8. All required entries in the appropriate vessel's logs are made.</p>
Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>BRM</p> <p>Condition II or III</p> <p>Error trapping</p> <p>Condition II: the ship is underway offshore in restricted visibility, with increased traffic, land or shoals affecting navigation (coastwise navigation).</p>	<p>On a ship at sea or on a full mission ship simulator during an exercise at sea, and with a bridge team in place for navigating in congested near coastal waters with or without reduced visibility, and assigned duties as an officer in a Bridge Team, when one of the following occur:</p> <ol style="list-style-type: none"> 1. an incorrect rudder order is given; 2. a rudder or engine command is not given at the proper time to maintain the intended track; 3. a navigational aid is misidentified; 4. the vessel's position is improperly fixed; or 5. a target vessel's movements are improperly stated; 	<p>the candidate will monitor his or her vessel's movement, recognize erroneously-stated information about the vessel's position or a target vessels movement, and notify the conning officer of specific questions regarding the vessel's situation.</p>	<ol style="list-style-type: none"> 1. The misinformation or command error is detected. 2. The conning officer is notified within 30 seconds of the occurrence of the error. (for helm orders, the candidate will detect the error and issue a corrective order within 5 seconds)

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>BRM</p> <p>Condition II or III</p> <p>Prioritization</p>	<p>On a full mission ship simulator during an exercise at sea, and with a bridge team in place, while navigating in congested near coastal waters in good visibility, and assigned duties as an officer in a Bridge Team, and given the following:</p> <ol style="list-style-type: none"> 1. a vessel on own ship's starboard bow changes course and creates a risk of collision; 2. insufficient water depth for own ship to turn to starboard; 3. the diesel engines using heavy fuel; 4. a vessel ahead is on a reciprocal course 1.5 miles away with a CPA of 0.5 miles on the port side; and 5. the GMDSS distress alarm sounds, 	the candidate will determine the appropriate action to take.	<p>The candidate will:</p> <ol style="list-style-type: none"> 1. assess the situation; 2. determine in which priority action must be taken for the safety of the vessel; 3. recommend the engines be slowed or stopped in sufficient time to avoid the collision with the vessel on the starboard bow; 4. after the danger of collision is over, acknowledge the distress call.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maintain a safe navigational watch.	Thorough knowledge of effective bridge teamwork procedures. BRM Condition II	On a ship at sea or on a full mission ship simulator during an exercise at sea, when acting as part of the bridge team with the assigned duties to monitor the vessel's navigation and determine the risk or danger of collision with all vessels underway in open sea, using an IMO compliant ARPA, a GPS receiver and all other bridge navigational equipment normally found on a seagoing vessel,	the candidate will determine and plot the vessel's position at suitable intervals, and plot or systematically observe all approaching vessels and inform the bridge team of dangers to navigation, intended course changes, and vessels which pose a risk or danger of collision.	<ol style="list-style-type: none"> 1. The vessel's position is determined and plotted at suitable intervals. 2. All aids to navigation are identified. 3. The bridge team is notified immediately of the following; <ol style="list-style-type: none"> a) when planned course changes must be made; b) effects of tides or currents setting the vessel off its intended course; and, c) any doubt about the vessel's position. 4. The risk and danger of collision with approaching vessels in the vicinity are determined by visual and radar/ARPA bearings. 5. The bridge team is notified of the following:

				<ul style="list-style-type: none"> a) danger or risk of collision with any approaching vessel; b) recommended course change to avoid the risk or danger of collision; and, c) recommended speed change to avoid the risk or danger of collision if the engines are available for immediate use.
Maintain a safe navigational watch.	<p>Thorough knowledge of effective bridge teamwork procedures.</p> <p>BRM Condition III</p>	On a ship at sea or on a full mission ship simulator during an exercise at sea, to establish a bridge team to monitor the vessel's navigation and determine the risk or danger of collision with all vessels,	the candidate will determine the number of officers and crewmembers required safely navigating the vessel and assigning individual officers specific duties and functions as part of the bridge team.	<p>Officers were assigned to the following tasks:</p> <ul style="list-style-type: none"> a) conning; b) lookout c) collision avoidance; and d) navigation; e) communication; and, f) administration.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>Ability to operate and to interpret and analyze information obtained from radar, including the following:</p> <p>Performance, including,</p> <p>.2 setting up and maintaining displays</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will set up and maintain the radar display.	<p>Within three minutes, after the power is turned on:</p> <ol style="list-style-type: none"> 1. The set is switched from standby to transmit; 2. the appropriate scale is selected; 3. the gain control was adjusted so that targets and sea return appears; 4. the tune control is adjusted (if the unit is not self tuning); 5. the brilliance control is adjusted; 6. the sea clutter and rain clutter controls are adjusted to suppress the rain and sea clutter without losing targets; 7. the north up stabilized relative motion is selected.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>Ability to operate and to interpret and analyze information obtained from radar, including the following:</p> <p>Performance, including,</p> <p>.2 setting up and maintaining displays</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will switch the display from north up stabilized relative motion to true motion to head up, and state how to recognize the mode displayed.	<p>Within 15 seconds:</p> <ol style="list-style-type: none"> 1. the display is switched from north up stabilized relative motion to true motion; 2. the display is switched from true motion to head up; 3. the candidate points to the location on the display of the information that indicates the mode displayed.
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>Ability to operate and to interpret and analyze information obtained from radar, including the following:</p> <p>Performance, including,</p> <p>.3 detection of misrepresentation of information, false echoes, sea return, etc., racons and SARTs.</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will identify false echoes, sea return, a racon and SART.	<p>The candidate recognizes and correctly identifies:</p> <ol style="list-style-type: none"> 1. the false echoes <ol style="list-style-type: none"> a. indirect or false echoes; b. side lobe effects; c. multiple echoes; d. second trace echoes; e. electronic interference; and, f. spoking; 2. sea return; 3. racons; and 4. SARTS.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	Radar Navigation Use, including: .1 range and bearing, course and speed of other ships; time and distance of crossing, meeting, and overtaking ships.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, with land and aids to navigation in range,	the candidate will determine the range and bearing to an object.	1. The candidate determines the range and bearing to an object selected by the assessor within 30 seconds. 2. The candidate's determination is within ± 0.1 nm of the assessor's solution or $\pm 1\%$ of the range scale in use. 3. The candidate's determination of the bearing is within $\pm 1^\circ$ of the assessor's solution.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	Radar Navigation .2 identification of critical echoes;	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, with at least 5 vessels on the display,	the candidate will determine if risk of collision or danger of collision exists with all approaching vessels.	The candidate identifies: <ol style="list-style-type: none"> 1. all approaching vessels whose bearings do not change appreciably; and 2. all vessels that have a CPA of less than 3 miles; and 3. all determinations are made within 8 minutes of determining the initial range and bearing of each vessel.
Use radar and ARPA to maintain the safety of navigation.	Radar Navigation .2 identification of critical echoes; detecting course and speed changes of to other ships; effective changes of own ship's course and speed.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale,	the candidate will determine: <ol style="list-style-type: none"> 1. the range and bearing to 3 other ships (meeting, crossing, and overtaking); 2. the DRM and SRM of all other ships; and 3. the CPA and TCPA of all vessels on the 12 mile scale with less than a 3 mile CPA. 	<ol style="list-style-type: none"> 1. The range and bearing solution is completed within 30 seconds and is within the previously stated tolerances. 2. The DRM solution is completed within 6 minutes and is within $\pm 5^\circ$ of the assessor's solution. 3. The SRM solution is completed within 7 minutes of initial range and bearing and is within ± 2 knot. 4. The CPA solution is completed within 7

				<p>minutes and is within ± 0.5 miles.</p> <p>5. The TCPA solution is completed within 8 minutes and is within ± 3 minutes.</p>
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>.2 identification of critical echoes; detecting course and speed changes of to other ships; effective changes of own ship's course and speed.</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, in the stabilized relative motion north up mode, and with meeting of crossing targets,	the candidate will detect speed and course changes of other ships, which result in a change in the direction or speed of relative motion.	Other ships' speed changes of at least 5 knots and/or course changes of at least 10° are detected within 10 rotations of the sweep (30 seconds) from the time the candidate began his or her systematic observation of the display.
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>.2 identification of critical echoes; detecting course and speed changes of to other ships; effective changes of own ship's course and speed.</p> <p>.3 application of International Regulations for Preventing Collisions at Sea.</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, on the 12 mile scale in north up stabilized relative motion mode, with a ship on the starboard bow with a CPA of 0.5.	the candidate will control the target vessels DRM by changing own ship's course in accordance with the COLREGS.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. Determines the new course to steer to achieve a 2 mile CPA; 2. Executes a turn to starboard; and 3. achieves a CPA of not less than 1.8 nm or more than 2.2 nm.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>.2 identification of critical echoes; detecting course and speed changes of to other ships; effective changes of own ship's course and speed.</p> <p>.3 application of International Regulations for Preventing Collisions at Sea.</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, in the north up stabilized relative motion mode, with a vessel on the beam with a CPA of less than 0.5 NM ahead,	the candidate will control the target vessels DRM by changing own ship's speed in accordance with the COLREGS.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. determines the new speed to achieve a 2 mile CPA; 2. executes a speed reduction; and 3. achieves a CPA of not less than 1.8nm or more than 2.2 nm.
Use radar and ARPA to maintain the safety of navigation.	<p>Radar Navigation</p> <p>.4 plotting techniques and relative and true motion concepts.</p>	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, in the relative motion north up mode, using any graphically correct method,	the candidate will determine the true course and speed of three target vessels.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. constructs a relative motion triangle on either a reflection plotter, a maneuvering board, or a transfer plotting sheet; and 2. solves for the target vessel's true course and speed within 8 minutes. 3. The candidate's true course solution is within $\pm 5^\circ$ and the true speed solution is within ± 5knots.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	Radar Navigation .4 plotting techniques and relative and true motion concepts.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, in the true motion mode, using any graphically correct method,	the candidate will determine the DRM, SRM, CPA and TCPA of three target vessels.	The candidate: <ol style="list-style-type: none"> constructs a relative motion triangle on either a reflection plotter, a maneuvering board, or a transfer plotting sheet; and the DRM solution is completed within 8 minutes and is within $\pm 5^\circ$ of the assessor's solution; the SRM solution is completed within 8 minutes of initial range and bearing and is within ± 2 knot; CPA solution is completed within 7 minutes and is within ± 0.5 miles; and the TCPA solution is completed within 8 minutes and is within ± 3 minutes.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	Radar Navigation .5 parallel indexing.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12 mile scale, in relative motion north up mode, with aids to navigation and a coastline displayed on the display,	the candidate will use a parallel index line to monitor and maintain the vessel on track.	The candidate: <ol style="list-style-type: none"> 1. constructs a parallel index line through the edge of the known hazard to navigation or land mass; and, 2. monitors the vessel's movement in relation to the parallel index line or an electronic display of the distance off the index line to determine if the vessel moved toward the hazard or landmass. 3. The vessel does not drift more than 10 % of the set distance toward the parallel index line.

Before an OICNW may serve on a vessel equipped with an ARPA, he or she must complete a Coast Guard approved or accepted ARPA course that includes a practical demonstration and assessment of the following skills.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	<p>Principle types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA.</p> <p>Ability to operate and to interpret and analyze information obtained from ARPA, including:</p> <p>.1 system performance and accuracy, tracking capabilities and limitations, and processing delays.</p> <p>.2 use of operational warnings and system tests.</p>	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA),	the candidate will set up and maintain the ARPA display.	<p>Within three minutes, the candidate:</p> <ol style="list-style-type: none"> 1. Turns the power on; 2. Initializes performance monitor; 3. Notes error messages; 4. Switches from standby to on; 5. Selects the appropriate scale; 6. Adjusts the gain control so that targets and sea return appeared; 7. Adjusts the tune control (if the unit is not self tuning); 8. Adjusts the brilliance control; 9. Adjusts the sea clutter and rain clutter controls to suppress the rain and sea clutter without losing targets. 10. Selects display north up stabilized, relative motion. 11. Selects proper gyro course and speed input. 12. Selects sea stabilized mode.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	.3 methods of target acquisition and their limitations.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with at least 10 targets on the selected range,	the candidate must acquire ten targets manually.	The candidate manually acquires 10 targets within 2 minutes.
Use radar and ARPA to maintain the safety of navigation.	.3 methods of target acquisition and their limitations.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale, and in automatic acquisition,	the candidate must establish an exclusion area that suppresses the automatic acquisition of targets in that area.	The candidate establishes within 2 minutes: <ol style="list-style-type: none"> 1. an exclusion area on the port side of the vessel; that is either, 2. described by an arc of 90° on the port side of the vessel; or 3. described by a line parallel to the vessel's track four miles from the vessel.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	.4 true and relative vectors, graphic representation of target information and danger areas.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate will switch between true and relative vectors and change the length of the vectors from 6 minutes to 30 minutes.	The candidate switches between true and relative vectors and changes the length of the vectors within 10 seconds.
Use radar and ARPA to maintain the safety of navigation	.4 true and relative vectors, graphic representation of target information and danger areas	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate designates two acquired targets.	The candidate designates: <ol style="list-style-type: none"> 1. two of the acquired targets for an alphanumeric display of the target information; 2. the designation is completed within 10 seconds for each target.
Use radar and ARPA to maintain the safety of navigation	.4 true and relative vectors, graphic representation of target information and danger areas	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA),	the candidate will cancel a single target.	A single target is cancelled within 5 seconds.

	KUP	Performance Condition	Performance Behavior	Performance Standard
to	.4 true and relative vectors, graphic representation of target information and danger areas.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), on the 12 mile scale,	the candidate will demonstrate the ability to have the ARPA display past target history.	The candidate correctly operates the controls that display past target history. The past history is displayed within 10 seconds.
to	.4 true and relative vectors, graphic representation of target information and danger areas.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate will establish the CPA and TCPA for dangerous targets.	The candidate determines the parameters for dangerous targets by: 1. entering a minimum CPA; and 2. entering a minimum TCPA. Data entry will be completed within 1 minute.
to	.4 true and relative vectors, graphic representation of target information and danger areas.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate will establish an alarm area with outer and inner guard rings.	The candidate establishes an alarm area with an outer guard ring of 8 nm and an inner guard ring of 4nm within 2 minutes.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	.5 deriving and analyzing information, critical echoes, exclusion areas and trail maneuvers.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale, with at least ten targets within 12 miles of the own ship,	the candidate will demonstrate the trial maneuver function.	The candidate: <ol style="list-style-type: none"> 1. accesses the trial maneuver mode; 2. enters course changes; 3. determines the course to steer to avoid all targets by at least 2 NM, within 30 seconds;. 4. enters speed changes; 5. determines the speed necessary to avoid all targets by at least 2 NM., within 30 seconds; and 6. returns the display to real time.
Use radar and ARPA to maintain the safety of navigation.	.5 deriving and analyzing information, critical echoes, exclusion areas and trail maneuvers.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate will switch the display from a north up relative motion sea stabilized display to a true motion ground stabilized display.	The candidate completes the change within 10 seconds.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	.5 deriving and analyzing information, critical echoes, exclusion areas and trail maneuvers.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale,	the candidate will determine the range and bearing to an object.	<ol style="list-style-type: none"> 1. The candidate determines the range and bearing to an object selected by the assessor within 30 seconds by positioning the VRM on the edge of the object which is closest to the vessel and positioning the EBL through the object. 2. The candidate's determination is within ± 0.1 nm of the assessor's solution or $\pm 1\%$ of the range scale in use. 3. The candidate's determination of the bearing is within $\pm 1^\circ$ of the assessor's solution.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	.5 deriving and analyzing information, critical echoes, exclusion areas and trail maneuvers.	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12 mile scale, using 2 nav marks and one nav line,	the candidate will establish a parallel index line to monitor and maintain the vessel on track.	The candidate: <ol style="list-style-type: none"> 1. constructs a parallel index line between the 2 nav marks and through the seaward edge of the known hazard to navigation or land mass; 2. positions the VRM at a distance named by the assessor from the edge of the parallel index line; and 3. monitors the vessel' movement to determine if the edge of the VRM moves inside the parallel index line. 4. The VRM must not drift more than 10 % of the VRM distance inside the parallel index line.
Use radar and ARPA to maintain the safety of navigation..	.5 deriving and analyzing information, critical echoes, exclusion areas and trail maneuvers	On an operational ARPA that meet the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), on the 12 mile scale,	the candidate will determine the set and drift of the vessel.	<ol style="list-style-type: none"> 1. The display is sea stabilized. 2. A stationery target is identified, acquired and designated. 3. The target's course and speed is read as the set and drift within 3 minutes.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Transmit and receive information by visual signaling.	<p><i>Visual signaling</i></p> <p>Ability to transmit and receive signals by Morse code.</p>	<p>On a ship or in a laboratory using:</p> <ol style="list-style-type: none"> 1. One Califone cassette tape recorder; and 2. A device that sends flashing light messages at a speed of 6 wpm; <p>when sent two messages, the first consisting the following:</p> <ol style="list-style-type: none"> 1. DE followed by a four-(4) letter identity signal, sent once; 2. YU: Indicating that a Code Group follows, sent once; 3. Text: Five random five letter groups, each of which is repeated twice; and, 4. Ending: AR; <p>and the second consisting of:</p> <ol style="list-style-type: none"> 1. DE followed by a four letter identity signal, sent once; 2. YU: Indicating that a Code Group follows; sent once; 3. Text: Five three-character code groups, each of which is sent twice; 4. Ending: AR; 	<p>the candidate will read the Morse code flashing light signals, record the letters and numbers of the entire message, and interpret the code groups in accordance with H.O. 102.</p>	<p>The candidate:</p> <ol style="list-style-type: none"> 1. records the letters of the message; and, 2. achieves a minimum passing score of 80% scored as follows: <ol style="list-style-type: none"> a. three points are given for each correct character of the five random five letter groups for a possible total of 75 points; and b. five points are given for each correct plain language interpretation (candidate must look up the meaning of the code groups in H.O. 102) of each of the five code groups for a possible total of 25 points.

STCW Competence	KUP	Performance Condition	Performance Behavior	Performance Standard
Maneuver the ship.	<p><i>Ship maneuvering and handling</i></p> <p>Maneuvering and procedures for the rescue of person overboard.</p>	On a ship at sea or in a full mission simulator, upon receiving notification of a Man-Overboard (MOB),	the candidate will immediately initiate either a Williamson Turn or Anderson Turn (as appropriate for conditions), return the vessel to the MOB, and give the command to launch the rescue boat.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. Orders full rudder to the side of MOB and place the engines on stand by (do not reduce RPMs); 2. Simulates releasing the lighted buoy; 3. Sounds MOB signal if other vessels are in sight; 4. Marks (if equipped) the ship's position on ARPA/GPS; 5. Simulates a "Pan" call on the VHF notifying any vessels in vicinity of the MOB; 6. Completes the recovery turn; 7. States that the rescue boat would be prepared for launch; or scrambling nets rigged on correct side of the vessel; 8. States that when on the reciprocal of the original course, the vessel will be slowed and stopped within .1 nm of the MOB to begin the recovery/search.

STCW Competence	KUP	Performance Condition	Performance Behavior	
Maneuver the ship.	<i>Ship maneuvering and handling</i> Basic Maneuvering.	On a ship at sea or in a full mission simulator,	the candidate will order turning the vessel left or right more than 45° from the original heading.	1
Maneuver the ship.	<i>Ship maneuvering and handling</i> Basic Maneuvering.	On a ship at sea, or in a full mission simulator, proceeding at a speed of at least half ahead,	the candidate will execute an emergency stop.	2 3 7 t c f t r a v t r